

End-of-Life Care Planning in Accountable Care Organizations: Associations with Organizational Characteristics and Capabilities

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Objective. To measure the extent to which accountable care organizations (ACOs) have adopted end-of-life (EOL) care planning processes and characterize those ACOs that have established processes related to EOL.

Data Sources. This study uses data from three waves (2012–2015) of the National Survey of ACOs. Respondents were 397 ACOs participating in Medicare, Medicaid, and commercial ACO contracts.

Study Design. This is a cross-sectional survey study using multivariate ordered logit regression models. We measured the extent to which the ACO had adopted EOL care planning processes as well as organizational characteristics, including care management, utilization management, health informatics, and shared decision-making capabilities, palliative care, and patient-centered medical home experience.

Principal Findings. Twenty-one percent of ACOs had few or no EOL care planning processes, 60 percent had some processes, and 19.6 percent had advanced processes. ACOs with a hospital in their system (OR: 3.07; $p = .01$), and ACOs with advanced care management (OR: 1.43; $p = .02$), utilization management (OR: 1.58, $p = .00$), and shared decision-making capabilities (OR: 16.3, $p = .000$) were more likely to have EOL care planning processes than those with no hospital or few to no capabilities.

Conclusions. There remains considerable room for today's ACOs to increase uptake of EOL care planning, possibly by leveraging existing care management, utilization management, and shared decision-making processes.

Key Words. Accountable care organization, palliative care, advance care planning, end-of-life care, health reform

End-of-life (EOL) care is expensive and often misaligned with patient preferences (Lee et al. 2000; Teno et al. 2002; Deno et al. 2010; Mack et al. 2010). Although patients and the public at large continue to express a preference for less medical intervention at the end of life that is focused on improving quality

of life rather than quantity (Institute of Medicine [US] Committee on Care at the End of Life 1997; Nathan Cummings Foundation and Fetzer Institute 1997; Cloud 2000; Steinhauser et al. 2000; Huang et al. 2015; Meghani and Hinds 2015), more people than ever are spending their last month of life in an intensive care unit (ICU) and experiencing potentially burdensome care transitions with high rates of preventable hospitalizations (Teno et al. 2002). Approximately 25 percent of Medicare spending goes toward the 5 percent of beneficiaries who die each year, and spending on decedents is six times greater than spending on other beneficiaries. Much of this spending is driven by a predominantly fee-for-service system that incentivizes greater utilization, particularly expensive cure-oriented interventions at the EOL, with insufficient consideration for patient preference or probable outcomes.

Counseling patients and helping them to plan for their EOL care have been shown to increase the concordance between expressed patient preferences and health care utilization (Wright et al. 2008; Zhang et al. 2009; Detering et al. 2010; Mack et al. 2010; Kirchhoff et al. 2012), which may in turn help to reduce health care costs as patients often prioritize going home over costly hospitalizations and comfort over intensive and expensive interventions. However, EOL care planning remains far from standard practice, in part due to primary care workforce shortages and the limited availability of effective EOL communication training programs for outpatient providers. Moreover, our fragmented health care delivery system challenges our ability to carry EOL care planning discussions and decisions forward and across settings, despite recommendations from many professional societies that such discussions happen early and regularly over the course of an illness (Lo, Quill, and Tulsky 1999; Lanken et al. 2008; Allen et al. 2012). Still, recent Medicare rules to reimburse physicians for advance care planning discussions highlight growing national attention on the importance of systematic and routine EOL care planning processes.

Accountable care organizations (ACOs), where provider groups and related organizations such as hospitals work collaboratively to assume shared responsibility for costs and quality of care delivered to a defined population, are well positioned to support EOL care planning processes. Within the ACO model, payment is tied to achievement of cost savings and quality measures,

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thereby incentivizing providers to coordinate cost-conscious and high-quality care across the continuum for their patients. ACOs often have relationships with providers across settings of care and may utilize a primary care physician to “quarterback” (Lewis et al. 2016) patient care within and outside the ACO network, facilitating care coordination and transfer of patient information about preferences across the continuum. ACOs may be more likely than traditional health care organizations to invest in strategies and services with high fixed costs or little-to-no fee-for-service reimbursement that could result in cost savings over time, such as EOL care planning processes and palliative care clinicians. A recent Institute of Medicine report on the quality of end-of-life care in the United States posited that ACOs have a strong incentive to adopt practices that optimize palliative care, highlighting the important role that EOL care planning processes might have in these organizations (IOM [Institute of Medicine] 2014).

We sought to understand the extent to which ACOs have adopted EOL care planning processes and the characteristics of those ACOs that have such processes in place. Such information can provide guidance for policy makers and ACO leadership as they continue to refine the structures, processes, and policies pertaining to ACOs and inform future efforts to integrate care planning into emerging health care models and systems.

Theoretical Framework and Hypotheses

Theories of organizational behavior posit various determinants of adoption of innovation by health care organizations, including the degree of experience and technical specialization (Aiken and Hage 1971; Moch 1976; Moch and Morse 1977; Kimberly 1978; Kimberly and Evanisko 1981) possessed by the organization in areas related to the innovation, the resources available to support the adoption of new processes (Kaluzny, Veney, and Gentry 1974; Globerman 1982; Teplensky et al. 1995; Castle 2001; Nystrom, Ramamurthy, and Wilson 2002; Wang et al. 2005), organizational complexity and size (Hage and Aiken 1967; Aiken and Hage 1971; Hage and Dewar 1973; Meyer and Goes 1988; Glandon and Counte 1995; Cockerill, Charles, and Roberts 1999), and the organization’s ability and desire to learn and change (Hage and Aiken 1967; Robertson and Wind 1980; Walston, Kimberly, and Burns 2001; Nystrom, Ramamurthy, and Wilson 2002; Knudsen and Roman 2004).

Guided by these theories of organizational adoption of innovation, we hypothesize that (1) ACOs with systematic and comprehensive approaches to care management, utilization management, palliative care, patient-centered

care, and shared decision making will be more likely to have adopted EOL care planning processes (experience and technical specialization); (2) the use of health information technology to support capture and transfer of information about patient preferences will be positively associated with ACO adoption of EOL care planning processes (resources); (3) larger ACOs, ACOs with joint physician–hospital leadership, ACOs with a Medicare contract, and ACOs that include hospitals and/or nursing homes in their network will be more likely to have adopted an EOL care planning process (complexity, size); and (4) ACOs whose shared savings are contingent on quality metrics and those who accept downside risk will be more likely to have adopted an EOL care planning process (learning/change climate), because of an organizational focus on quality improvement and the incentive toward greater efficiency due to accepted risk.

METHODS

Data Source

We used data from the National Survey of Accountable Care Organizations (NSACO), a cross-sectional, self-administered survey fielded annually between 2012 and 2015, capturing data on ACO structure, size, contracts with payers, organizational capabilities, leadership, and ACO processes, including performance measurement activities, quality and process improvement efforts, allocation of financial rewards, and care and utilization management capabilities. The survey was completed by a designated individual in the ACO who was most knowledgeable about the organization's contracts and activities. Participation was voluntary. Detail on survey development and testing is described elsewhere (Colla et al. 2014); briefly, the NSACO was designed based on published frameworks for evaluating ACOs, interviews with ACO leaders, and a review of existing surveys. Cognitive testing on a sample of questions was conducted with leaders from seven ACOs, and the entire survey was pilot-tested on executives from 19 ACOs. The survey was approved by the Institutional Review Board at Dartmouth College.

Participants

Eligible ACOs included participants in (1) the Medicare Sharing Savings and Pioneer ACO programs, (2) state Medicaid ACO programs, and (3) commercial ACO contracts as identified by various sources such as provider surveys,

participation in ACO collaboratives, published case studies, public announcements, and ACO certification by National Committee for Quality Assurance. ACOs were surveyed in three waves: Wave 1 (ACOs formed October 2012–May 2013), Wave 2 (September 2013–March 2014), and Wave 3 (November 2014–April 2015). Across all waves, a total of 780 organizations were deemed eligible and invited to participate in the survey. Of these potential participants, 618 completed a set of screening questions designed to confirm their designation as an ACO, and 397 were determined to be eligible and completed the full survey. The response rate across the three waves of the survey was 64 percent.

Measures

Dependent Variable. Our primary outcome of interest was the extent to which the ACO had adopted care planning processes and was measured on a 9-point scale by the following question: “To what extent does your ACO have established processes and protocols in place for identifying, counseling, and planning for EOL care?” Every three points on the 9-point response scale were behaviorally anchored: Points 1–3 were anchored by “We have few or no processes in place to identify or plan for EOL care;” points 4–6 were anchored by “We have some processes in place to identify, counsel, or plan for EOL care (e.g., advance directives) in some settings;” and points 7–9 were anchored by “We have processes in place to identify, counsel, and plan for EOL care across specialties and care settings.” Responses refer to any applicable care setting as perceived by the respondent, but they do not distinguish specifically between settings (e.g., inpatient vs. outpatient). For analytic purposes, we collapsed responses into three categories: low (1–3; few or no processes in place), medium (4–6; some processes in place), and high (7–9; advanced processes in place).

Independent Variables. Selection of independent variables from the NSACO for our analyses was guided by the theoretical framework described above. To characterize organizational experience and technical specialization, we included the following measures:

1. *Care management capability:* The average of three survey questions each on a 9-point scale measuring (1) organizational adoption of care management processes; (2) provider engagement in care

management processes; and (3) organizational adoption of care transition systems (Cronbach's $\alpha = 0.76$). Each response category was behaviorally anchored using a quantified scale with narrative examples of advanced, moderate, and poor performance.

2. *Utilization management capability*: The average of three survey questions each on a 9-point scale measuring (1) ACO engagement in reducing preventable hospital readmissions; (2) ACO engagement in reducing hospital admissions for ambulatory care-sensitive conditions; and (3) ACO engagement in assessing inappropriate emergency department use (Cronbach's $\alpha = 0.74$). Response categories were behaviorally anchored as described above.
3. *Palliative care experience*: A single item measuring the highest level of engagement that palliative care/hospice provider groups had with the ACO as either within the ACO, contracted outside the ACO, or no relationship. Response categories were collapsed to create a dichotomous variable (no relationship vs. some relationship) for analysis.
4. *Patient-centered medical home (PCMH) experience*: A single dichotomous item evaluating whether the ACO or any of its participating provider groups had ever participated in a PCMH.
5. *Shared decision making*: A single item measuring on a 9-point scale the extent to which the ACO had processes in place to encourage shared medical decision making. For analytic purposes, responses were collapsed into three categories: low (none or few processes in place), medium (some processes in place), and high (advanced processes in place).

To characterize organizational resources available to support the adoption of EOL care planning processes, we included a measure of health informatics sophistication: the average of three survey questions each on a 9-point scale measuring: (1) the organization's ability to integrate outpatient and inpatient data from providers within the ACO; (2) the ability to integrate outpatient and inpatient data from providers outside the ACO; and (3) whether a system for predictive risk assessment and stratification of ACO population was in place (Cronbach's $\alpha = 0.89$).

To characterize organizational complexity and size, we included measures of ACO size (the number of clinician FTEs); ACO leadership type (physician-led or joint physician-hospital leadership); ACO contract type by payer (operationalized as having at least one commercial contract, having at

least one Medicaid contract, or having a Medicare contract); and whether the ACO included a hospital, nursing home, or both. We also controlled for geographic location using U.S. Census Regions: Northeast Region including the New England and Middle Atlantic divisions; Midwest Region including the East North Central and West North Central divisions; South Region including the South Atlantic, East South Central, and West South Central divisions; and West Region including the Mountain and Pacific divisions.

To characterize the organization's learning and/or change climate, we included two measures: whether the ACO took on downside risk (or responsibility for overspending) and whether shared savings were contingent on quality metric performance.

Statistical Analysis

We use descriptive statistics to summarize ACO characteristics and capabilities, and calculated bivariate associations between ACO characteristics and capabilities and having established EOL care planning processes using Pearson chi-squared tests or Student's *t*-tests where appropriate. We use multivariate ordered logit regression models to estimate the odds of having established processes for EOL care planning according to these characteristics and capabilities. All analyses were performed using *Stata* Statistical Software (Release 14. College Station, TX: StataCorp LP).

RESULTS

Cohort Description

There were 173 completed surveys in Wave 1, 96 in Wave 2, and 128 in Wave 3 (Table 1). Of the 397 total ACOs, 57 percent had commercial ACO contracts, 76 percent had Medicare ACO contracts, and 23 percent had Medicaid ACO contracts. Most (46 percent) ACOs in our sample were small, with 0–99 clinician FTEs, and 31 percent were jointly led by physicians and hospitals. A large proportion of ACOs had a hospital in their network (65 percent) and were only responsible for upside risk or bonus payments (73 percent), and almost all (97 percent) earned shared savings contingent on their performance on quality metrics. In addition, most ACOs had relationships with palliative care either within the organization or contracted (59 percent) and had experience with patient-centered medical homes (86 percent). Approximately 87 percent had some or advanced processes in place to encourage shared

Table 1: ACO Characteristics and Capabilities

<i>ACO Characteristic or Capability</i>	<i>No. or % of ACOs</i>
NSACO	
No. of Wave 1 respondents	173
No. of Wave 2 respondents	96
No. of Wave 3 respondents	128
ACO size by FTEs (% of ACOs)	
0–99 FTEs	45.93
100–199 FTEs	14.15
200–499 FTEs	20.35
500–999 FTEs	12.40
>1,000 FTEs	7.17
Leadership (% of ACOs)	
Physician-led	52.39
Joint physician-hospital leadership	31.49
Other (hospital, coalition, FQHC, or other) leadership	16.12
Region (% of ACOs)	
Northeast	22.54
South	34.20
Midwest	23.32
West	19.95
Includes a hospital (% of ACOs)	65.27
Includes a nursing home (% of ACOs)	25.47
Includes both hospital and nursing home (% of ACOs)	24.19
Includes at least one commercial ACO contract (% of ACOs)	57.18
Includes a medicare ACO contract (% of ACOs)	76.07
Includes at least one Medicaid ACO contract (% of ACOs)	23.43
Risk arrangement (% of ACOs)	
Upside risk only	73.07
Accepts downside risk	26.93
Shared savings contingent on quality (% of ACOs)	
Yes	96.82
No	3.18
Care management capability, score [†]	
Mean (SD)	5.59 (1.3)
Utilization management capability, score [†]	
Mean (SD)	6.14 (1.4)
HIT capability, score [†]	
Mean (SD)	4.91 (1.6)
Experience with palliative care (% of ACOs)	
Some relationship (within ACO or contracted)	59.15
No relationship	40.85
Experience with PCMH (% of ACOs)	
Any experience	85.71
No experience	14.29

Continued

Table 1 *Continued*

<i>ACO Characteristic or Capability</i>	<i>No. or % of ACOs</i>
Processes in place to encourage patient involvement in decision making (% of ACOs)	
No or few processes	13.11
Some processes	65.57
Advanced processes	21.31
Extent of established processes for EOL care (% of ACOs)	
No or few processes	20.71
Some processes	59.67
Advanced processes	19.62

†Measured on a 9-point scale, with 1–3 = low capability, 4–6 = moderate capability, and 9 = advanced capability.

decision making. On average, ACOs in our sample had moderate HIT capabilities, care management, and utilization management capabilities, with average scores on a 9-point scale of 4.91 (SD = 1.6), 5.59 (SD = 1.3), and 6.14 (SD = 1.4), respectively.

Unadjusted Outcomes

A fifth of ACOs (21 percent) had few or no processes in place for EOL care planning, 60 percent had some processes, and 19.6 percent had advanced processes in place (Table 1). More ACOs with some or advanced EOL care planning processes accepted downside risk; 30 percent of ACOs with some care planning processes and 30 percent of ACOs with advanced processes accepted downside risk, while only 15 percent of ACOs with no or few EOL care planning processes also accepted downside risk (Table 2). Almost 80 percent of ACOs with advanced EOL care planning processes had a relationship with palliative care, while 56 percent with some EOL care planning processes and 51 percent with no or few EOL care planning processes had any relationship with palliative care. Approximately 62 percent of ACOs with advanced EOL care planning processes also had advanced processes in place to encourage shared decision making, while only 15 percent of ACOs with some EOL care planning processes and 3 percent of ACOs with no or few care planning processes had advanced processes in place to encourage shared decision making. ACOs that had advanced processes in place for EOL care planning also had on average significantly more advanced care management capabilities, utilization management capabilities, and health informatics capabilities than ACOs with some or no EOL care planning processes in place.

Table 2: ACO Characteristics and Capabilities by End-of-Life Care Capacity

ACO Characteristic or Capability	Extent of Established Processes for EOL Care (% of ACOs or Mean [SD])		
	No or Few Processes	Some Processes	Advanced Processes
ACO size by FTEs			
0–99 FTEs	30.26	30.14	23.61
100–199 FTEs	17.11	18.26	16.67
200–499 FTEs	25.00	27.40	27.78
500–999 FTEs	14.47	18.26	13.89
>1,000 FTEs	13.16	5.94	18.06
Leadership			
Physician-led	52.63	51.60	58.33
Joint physician-hospital leadership	34.21	31.51	31.94
Region			
Northeast	25.68	22.07	21.13
South	43.24	32.39	28.17
Midwest	17.57	23.94	25.35
West	13.51	21.60	25.35
Includes a hospital	61.33	62.26	76.81
Includes a nursing home	30.67	23.30	29.41
Includes both hospital and nursing home	29.33	21.84	28.36
Includes at least one commercial ACO contract	57.89	57.08	61.11
Includes a Medicare ACO contract	72.37	76.26	77.78
Includes at least one Medicaid ACO contract	10.53	26.48	29.17
Risk arrangement			
Accepts downside risk (vs. upside risk only)	14.67	29.67	30.30
Shared savings contingent on quality	94.52	96.17	100.00
Care management capability, score [†]			
Mean (SD)	4.75 (1.3)	5.49 (1.1)	6.89 (1.1)
Utilization management capability, score [†]			
Mean (SD)	5.31 (1.6)	6.05 (1.2)	7.36 (1.1)
HIT capability, score [†]			
Mean (SD)	4.18 (1.7)	4.93 (1.4)	5.63 (1.7)
Experience with palliative care			
Some relationships (vs. no relationships)	50.67	56.22	79.71
Experience with PCMH			
Any experience (vs. no experience)	85.92	84.54	85.00
Processes to encourage shared decision making			
No or few processes	32.89	9.63	2.82
Some processes	64.47	75.69	35.21
Advanced processes	2.63	14.68	61.97

[†]Scores measured on a 9-point scale, with 1–3 = low/nascent capability, 4–6 = moderate capability, and 9 = advanced capability.

Regression-Adjusted Outcomes

Accountable care organizations with a hospital in their system were significantly more likely to have EOL care planning processes in place than those that did not (OR: 3.05; $p = .01$) (Table 3). ACOs with at least one Medicaid contract were almost three times more likely to have established EOL care planning processes than those without any Medicaid contracts (OR: 2.79; $p = .009$). ACOs whose shared savings were contingent on performance on quality metrics were more likely to have EOL care planning processes than ACOs whose savings were not contingent on quality (OR: 5.91; $p = .03$). ACOs who had advanced care management (OR: 1.49; $p = .01$) and utilization management (OR: 1.59; $p = .00$) capabilities were significantly more likely to have EOL care planning processes in place than those with few to no capabilities, and ACOs with some or advanced processes in place to encourage shared medical decision making (OR: 2.58, $p = .03$ and OR: 15.1, $p = .000$, respectively) were more likely to have EOL care planning processes in place than those with few to no processes in place to encourage shared decision making.

DISCUSSION

A core mission of ACOs in this new era of health reform is to improve health care value by providing cost-conscious high-quality care throughout the continuum. Central to this mission is the ability to help patients prepare and plan in advance for their care needs during advanced illness and to implement patient-centered, preference-concordant EOL care plans. This study reflects a first attempt to characterize the extent to which ACOs across the country are oriented toward EOL care planning and have established processes to support EOL planning. We found that a majority of ACOs had some EOL care planning processes in place, but only a small proportion of ACOs had advanced EOL care planning processes in place. Several characteristics and capabilities were associated with having EOL care planning processes in place, including having a hospital within the ACO system, having shared savings contingent on quality performance, having at least one Medicaid ACO contract, having advanced care and utilization management capabilities, and having some or advanced processes in place to encourage shared medical decision making. These findings provide initial direction into the characteristics and capabilities that may support the implementation of EOL care planning processes within ACOs.

Table 3: Multivariate Associations between ACO Characteristics and EOL Care Capacity

ACO Characteristic or Capability	EOL Care Capacity	
	OR	p-Value
ACO size by FTEs		
0–99 FTEs [†]		
100–199 FTEs	0.83	.68
200–499 FTEs	0.65	.29
500–999 FTEs	0.53	.19
>1,000 FTEs	0.54	.31
Region		
Northeast [†]		
South	0.57	.14
Midwest	1.08	.85
West	1.56	.33
The presence of hospital or nursing home		
Does not include a hospital [†]		
Includes a hospital	3.05	.01
Does not include a nursing home [†]		
Includes a nursing home	1.22	.88
Includes neither a hospital nor a nursing home [†]		
Includes both hospital and nursing home	0.36	.47
Leadership		
Physician-led	1.47	.41
Joint physician–hospital leadership	0.80	.65
Other-led [†]		
ACO contracts		
Does not include any commercial ACO contract [†]		
Includes at least one commercial ACO contract	1.29	.45
Does not include a Medicare ACO contract [†]		
Includes a Medicare ACO contract	1.80	.12
Does not include any Medicaid ACO contract [†]		
Includes at least one Medicaid ACO contract	2.79	.01
Risk arrangement		
Downside risk	0.81	.59
Upside risk [†]		
Shared savings contingent on quality		
Yes	5.91	.03
No [†]		
HIT capability, score [‡]	1.12	.29
Experience with PCMH		
Any experience	0.56	.14
No experience [†]		
Relationships with palliative care		
Within ACO or contracted	1.61	.19
No relationship [†]		

Continued

Table 3 *Continued*

<i>ACO Characteristic or Capability</i>	<i>EOL Care Capacity</i>	
	<i>OR</i>	<i>p-Value</i>
Processes to encourage patient involvement in decision making		
No or few processes [†]		
Some processes	2.58	.03
Advanced processes	15.13	.000
Care management capability, score [‡]	1.49	.01
Utilization management capability, score [‡]	1.59	.001

[†]Reference group.

[‡]Scores measured on a 9-point scale, with 1–3 = low/nascent capability, 4–6 = moderate capability, and 9 = advanced capability.

Accountable care organizations in our study with advanced care management and utilization management capabilities were also more likely to have EOL care planning processes in place. It is likely that because these organizations are already oriented toward systematic approaches for managing care delivery, they are more likely to understand the relevance and benefits of established formal EOL care planning processes. As with EOL care planning, care and utilization management processes may focus on reducing inappropriate and unwanted interventions to provide more patient-centered and simultaneously cost-conscious care. These organizations may also have structures and processes in place that facilitate both care management and EOL care planning, such as a strong primary care presence, established provider training programs around care planning, or the use of care managers who might be involved in care planning discussions with patients and family members. A closer look at how EOL care planning processes might align with extant care/utilization management processes to better align financial goals with clinical and moral imperative may set ACOs far ahead of the curve of high-value care (Cassel et al. 2015).

We hypothesized that ACOs with a hospital and/or nursing home in their network—a representative of the theoretical construct of organizational complexity—would be more likely to have established EOL care planning processes, and indeed, we found that ACOs in our study with a hospital in their system were more likely to have established EOL care planning processes in place. To date, much of specialist palliative care has been provided in hospitals, with the prevalence of inpatient palliative care in hospitals with 50 beds or more increasing from 24 percent to 67 percent between 2000 and 2011 (Dumanovsky et al. 2016). Although we did not

find a significant relationship between having a relationship with palliative care and EOL care planning processes in ACOs, it is possible that the presence of a palliative care provider or a designated palliative care bed in the hospital setting increases the likelihood that the ACO at large implements EOL care planning processes. It is also possible that ACOs with hospitals in their system are better resourced (Colla et al. 2016) and can afford to develop and implement EOL care planning programs. Moreover, having a hospital in the ACO may mean that the ACO is responsible for a sicker and more resource-intensive population, making EOL care planning particularly relevant to establish. Still, for EOL care planning to result in high-value and cost-conscious care, it is important to establish and implement these processes throughout the care continuum, ideally beginning early in the disease trajectory, such as in primary care, before the burden of hospital utilization becomes weighty. ACOs can help to change the tide in this area by expanding EOL care planning processes beyond inpatient settings to outpatient ambulatory care settings and help to solidify the linkages across the two settings.

We also found that ACOs with at least some processes in place to encourage shared decision making were considerably more likely to also have EOL care planning processes in place than those with no shared decision-making processes in place. A shared decision-making approach, which incorporates the exchange of relevant medical information, a discussion of preferred roles in decision making, and development of consensus among the providing team, the patient, and family members about a treatment plan consistent with the patient's values and preferences (Charles, Gafni, and Whelan 1999), is well aligned with the EOL care planning process, which optimally involves the same components. Yet evidence suggests that even in the EOL context, shared decision making remains limited with considerable opportunity for improvement (White et al. 2007; Frank 2009; Fisher and Ridley 2012; Gjerberg et al. 2015). ACOs, with their focus on improving quality while achieving efficiency gains, might be well positioned to ensure that these inter-related processes are in place and happen concurrently.

We hypothesized that ACOs with a Medicare contract would be more likely to have established EOL care planning processes, in part because an older and possibly sicker population might encourage greater attention to planning for EOL care. Instead, we found that having at least one Medicaid ACO contract was significantly associated with having established EOL care planning processes, with no associations found between having a Medicare contract or any commercial contracts. It is challenging

to disentangle the effects of payer type given that most ACOs hold multiple types of contracts; indeed, in our own sample, having at least one Medicaid contract does not preclude the ACO from also holding Medicare and commercial contracts. It is possible that holding a Medicaid ACO contract may incentivize greater efficiency as a result of differential reimbursement rates or the costs associated with managing a long-term care population, yet the translation of this into care planning practices is unlikely to be elucidated via self-reported survey methods. More research in understanding the role of different payer types on ACO structures, practices, and outcomes is needed.

Our study has a few limitations worth noting. First, although our analytic model reflects a range of important variables theoretically associated with organizational adoption of innovation (i.e., EOL care planning processes), we are limited in our ability to measure all potentially relevant factors to what is assessed through the NSACO. Certain variables not available to us such as organizational culture, urban/rural status, and case mix might provide additional insight into the characteristics of ACOs likely to have established care planning process. Second, the NSACO addresses a wide range of questions to a single designated individual at each ACO, and thus, responses are limited to the views and knowledge of that individual. Although we believe we identified the respondent who was most knowledgeable about the ACOs activities and relationships (respondents included CEOs, executive directors, and chief medical officers), it is possible that this person's response is not representative of the perspectives of frontline providers and staff. Another limitation is the timing of the survey, fielded during the first year of ACO implementation. If ACO contracts spur providers to invest in EOL care planning processes, it may happen more than 1 year into implementation, in which case our early surveys would not accurately reflect this activity.

Understanding the characteristics of ACOs that have adopted EOL care planning processes can provide guidance for policy makers and ACO leadership as ACO structure and policies continue to be refined. In particular, leveraging the natural synergies between care/utilization management programs and EOL care planning may help ACOs to more efficiently build their EOL care planning programs and advance their ability to provide high-value care overall. In addition, implementing palliative care and advance care planning processes in hospitals (where they are part of the ACO) may serve as a first step toward establishing an EOL care planning program in an ACO. While survey data such as that provided by the NSACO can highlight

existing practices, qualitative research is needed to elucidate and address the challenges to establishing EOL care planning processes faced by ACO leadership and clinicians and to provide richer detail on the barriers and enablers to implementation. Greater attention might usefully be given to smaller ACOs or those in earlier stages of development, where the level of organizational experience, technical specialization, and capacity may not support agile implementation of EOL care planning process. Qualitative data can also help to illuminate how EOL care planning processes are differentially implemented in outpatient versus inpatient settings, focusing on challenges and enablers unique to each setting. A critical next step will be to examine the extent to which EOL care planning processes affect important outcomes, including preference-concordant care, quality of EOL care, EOL care utilization, and costs.

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Appendix SA1: Author Matrix.